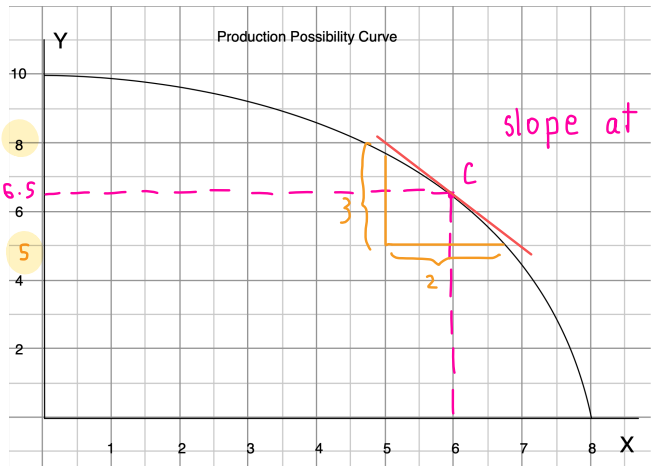
Pornpavee 6304641209

HW Nonlinear PPC



slope at $C = \frac{-3}{2} = -1.5$

a) Find the opportunity cost of each additional unit of y in terms of units of x

y	x	Opp. Cost of y
0	8	
1	7.9	= 0.1 less of x
2	7.7	= 0.2 less of x
3	7.4	0.3 less of x
4	7.1	0.3 less of x
5	6.7	0.4 less of x
6	6.3	0.4 less of x
7	5.6	0.7 less of x
8	4.7	0.9 less of x
9	3.4	1.3 less of x
10	0	3.4

when y increase 1 unit

c) $\frac{1}{-1.5} \approx -\frac{2}{3}$

≈ -0.67 opp cost of y

$\Delta y = -0.2$ ANS

d) $\Delta x \approx \frac{\Delta y}{\text{slope at } C} \approx \frac{-0.2}{-1.5} \approx 0.13$

$\therefore$ approx 0.13 unit more of x ANS

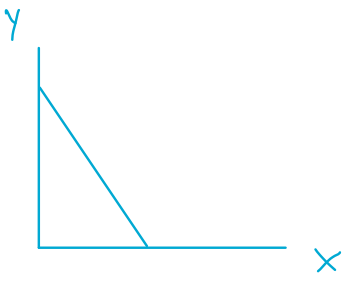
b) Is the opportunity cost of y increasing? yes

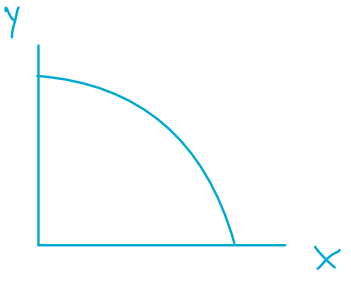
c) Compute the opportunity cost per unit of y when $x = 6$.

d) At $x = 6$, approximate how much more x can be produced if we have y less by 0.2 units.

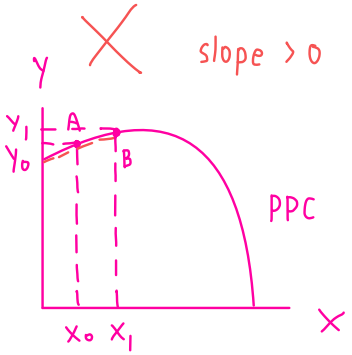
have same amount of input [land, labour, capital] the point (A) and (B) you might not using all input as B increase

Can a PPC have positive slope?

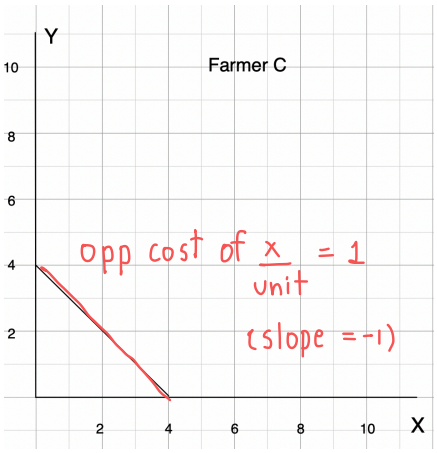




slope > 0

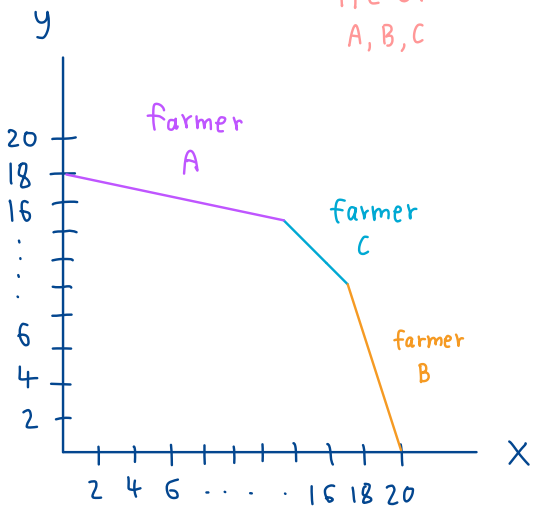


HW Farmer C has the PPC given below. Find the PPC of all three farmers A, B and C combined.



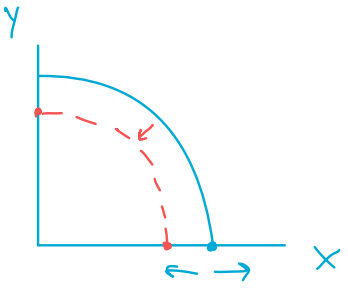
x	y	
0	18	A
1	17.4	
⋮	⋮	
10	12	
11	11	C
⋮	⋮	
14	8	
15	6.67	B
⋮	⋮	
20	0.02	

PPC of A, B, C

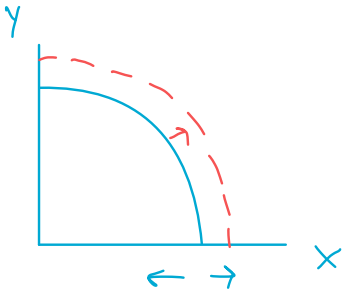


Change in PPC - fixed resource, fix technology, most efficient

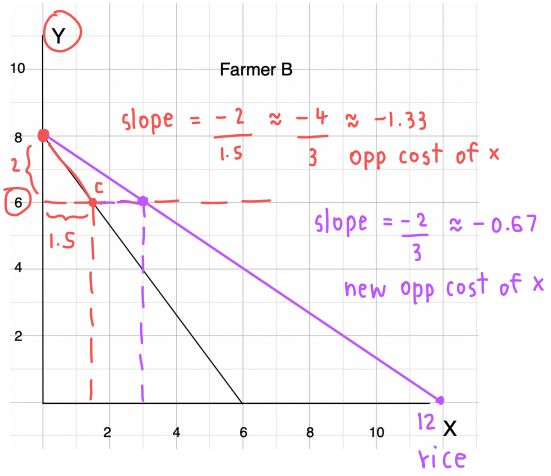
1. COVID-19



2. Improvement of Technology of producing both x and y.



HW. If a new fertilizer is found to double the output of rice (x) for any level of production of fish (y), how will PPC of farmer B change? Does the opportunity cost of x increase? Does the opportunity cost of y increase?



At point C (1.5, 6), $\Delta X = 2$

$\Delta y \approx$ (slope at C) $\cdot \Delta X$

$\approx (-1.33)(2)$

≈ -2.66

$\frac{1}{-1.33} = -0.75$ – opp cost of y

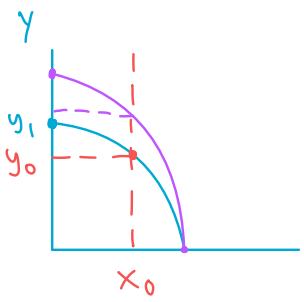
$\frac{1}{-0.67} = -1.49$ – new opp cost of y

∴ The opp cost of x decrease, but the opp cost of y increase. ANS

1 more unit of y ⇒ 0.67 unit less of x

1 more unit of x ⇒ 1.49 units less of y

Problem!



what if tech improve production of y to be double at every output of x

at (x_0, y_0)
- has opp cost of x change?
- ⟵ y ⟶ ?

(double)

At x_0, y increase from y_0 to y_1 since the improvement of technology.

The opp cost of x increase, but the opp cost of y decreases.